

CLAIMS

What is claimed is:

5           1. In a burst-type communication system comprising a transmitter and a receiver, a method of communicating information in a preamble synchronization sequence of a burst transmission, comprising:

10           selecting, at the transmitter, a selected one of a plurality of initial detection sequences, representing one or more first preamble information bits;

          selecting, at the transmitter, a selected one of a plurality of unique words, representing one or more second preamble information bits;

15           transmitting, at the transmitter, said preamble synchronization sequence comprising said selected one initial detection sequence and said selected one unique word;

          receiving, at the receiver, said preamble synchronization sequence;

20           detecting, at the receiver, said one initial detection sequence to produce first time synchronization information and to receive said one or more first preamble information bits; and

detecting, at the receiver, said one unique word to produce second time synchronization information and to receive said one or more second preamble information bits.

5           2. The method of claim 1, further comprising:

          differentially encoding, at the transmitter, said preamble synchronization sequence before transmitting said preamble synchronization sequence; and

          differentially decoding, at the receiver, said preamble synchronization sequence before detecting said one initial detection sequence and before detecting said one unique word.

10           3. The method of claim 2, wherein the plurality of initial detection sequences comprises one or more pairs of initial detection sequences, wherein each pair of initial detection sequences comprises a first initial detection sequence and a second initial detection sequence, said second initial detection sequence being a logical inverse of said first initial detection sequence.

15           4. The method of claim 2, wherein the plurality of unique words comprises one or more pairs of unique words, wherein each pair of unique words comprises a first unique word

and a second unique word, said second unique word being a logical inverse of said first unique word.

5. The method of claim 1, further comprising:

5 direct sequence spreading, at the transmitter, said preamble synchronization sequence before transmitting said preamble synchronization sequence; and

10 despread, at the receiver, said preamble synchronization sequence before detecting said one initial detection sequence and before detecting said one unique word.

6. In a burst-type communication system, a receiver comprising:

15 a differential detector receiving a differentially encoded synchronization sequence and providing a base synchronization sequence comprising,

a first plurality of symbols, comprising an initial detection sequence, and

20 a second plurality of symbols, comprising a unique word;

an integrator receiving the base synchronization sequence and integrating the first plurality of symbols to produce an initial detection signal;

a threshold detector receiving the first plurality of symbols, detecting the initial detection, producing an initial detection strobe comprising symbol timing information, and providing a first preamble information bit; and

5 a unique word detector receiving the base synchronization sequence, detecting the unique word, and producing a second preamble information bit.

10 7. The receiver of claim 6, further comprising a PN matched filter receiving a direct sequence spread spectrum signal and providing the differentially encoded synchronization sequence.

15 8. In a burst-type communication system, a transmitter transmitting a preamble synchronization sequence, said preamble synchronization sequence comprising:

an encoded initial detection sequence comprising a plurality of symbols representing one or more first preamble information bits; and

20 an encoded unique word comprising a plurality of symbols representing one or more second preamble information bits.